MYRMECIA

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The cover for this year's *Myrmecia* features an illustration of a Cerambycid beetle by Meaghan Meredith, University of Newcastle. Meaghan's drawing was Highly Commended in the Student Section of the 2008 AES Illustration

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MYRMECIA

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NOTICE

Statements made in *Myrmecia* do not necessarily represent the views of the Australian Entomological Society.

PRESIDENT'S REPORT

Just a reminder that the Darwin meeting is fast approaching and, if you haven't already done so, it would be a good idea to register and book accommodation ahead of time. If any of you are like me you leave conference related matters to the last minute. I realised when I sat down to write this epistle that I had in fact neglected to register, book flights etc myself! I put it down to the email age (or is it just age?). Those incessant emails reminding us that x,y or z are due, book now, mark your diary etc are deleted with "yeah, yeah" I'll do it later, and then later is upon you and you madly scramble to get flights, digs and maybe a paper submitted. Registration of course is easy … you just pay extra! So I'm feeling smug this time as I actually got in early (for me). So looking forward to seeing you in Darwin.

Congratulations to John Matthiessen, the team of Technical Editors, and of course the wider Editorial Board, reviewers and above all authors who have all contributed to the Australian Journal of Entomology. The Journal's all important impact factor recorded in 2008 is 1.072, with a five-year impact factor of 1.016. This ranks the journal at 28 of 72 in the entomology category of the Science Citation Index. By comparison, the 2007 impact factor was 0.684, with a ranking of 43 out of 73 Journals.

Hopefully members will continue to consider their own Journal in the future when it comes to publishing the fruits of their research in the science of entomology. We are of course a little hung up these days on impact factors and other supposed measures of research output and quality. Some bean counter is no doubt kept busy somewhere and some spin-doctor will no

doubt make up some story to go with whatever is measured (or wanted). Of course the key to all research is asking questions and doing the experiments to answer these. Part of the process is communicating ones findings to others, preferably in a peer-reviewed journal appropriate to the field. The key is independent peer review.

One of the privileges I have had over the past few years is to serve on the Editorial Board of the Annual Review of Entomology. In that capacity I was reading a review in a field that can remain nameless and I was struck by how North American centric the review seemed to be. I was sure one of our premier research establishments (that will also remain nameless) had undertaken a lot of research in the field but the work did not seem to get much mention. So I endeavoured to find out what had been published over the last 10 years by the Australian group. I was immediately struck by how little had actually been published in peer reviewed outlets. Yes there had been a lot of activity as judged by reports to industry and other bodies, but this is just the grey literature, a shadowy world not easily scrutinised. It is not particularly difficult to impress Industry, funding bodies or government departments with a 'report'. But as my supervisor used to say (still does I am sure): "if it hasn't been published it hasn't been done". So all that busy work could not be reviewed and brought to the attention of the wider entomological community.

I guess when we do actually publish we do rely on the scholarship of our peers to pick up our publications and cite as appropriate. Of course journal impact factors rely on citations but here we have an interesting problem. Articles these days are often devoid of scholarship and at best cite articles published within say the last 5 years. A paper I was refereeing for a major international journal recently brought this home to me. The work was interesting but had neglected earlier work (published in peer reviewed journals) that had pretty much done the same thing. The authors were effectively reinventing wheels, with a whole new spin of course!

So the take home message is publish in the most appropriate journal to the work, read widely and cite appropriate literature and hang the bean counters. I personally am not that hung up on impact factors. I suspect there will be some other measure of quality in the near future to get excited about, and impact factors will be forgotten along with reports. What is "H"?

Myron ZALUCKI
President

VICE PRESIDENT'S REPORT

I write this report as mid winter grips Canberra – there is snow on the mountains, woodsmoke in the valleys, and travel on our minds.

Myron Zalucki's report focuses on the increased impact factor for our Society Journal. This impact factor is a great effort for a regional journal like ours, and is due to a concerted effort by John, our Technical Editors, our Editorial Board and our Overview Editor Roger Kitching to increase the quality and therefore citability of the journal content. On behalf of the Society, we owe them our sincere thanks. Of course our future impact factor relies on manuscript authors continuing to submit high quality work to the journal, and authors citing papers published in our journal in upcoming manuscripts. So keep writing and citing for the Australian Journal of Entomology! Continuing the IT theme, as reported in last Myrmecia, John Matthiessen, the Chief Editor of the Australian Journal of Entomology, has now moved to online submission of manuscripts to the Journal through Manuscripts Central (http://mc.manuscriptcentral.com/aen).

Over the last few months the Executive has been making a concerted effort to ensure that our Society benefits fully from information technology. As you will have realised by now, Treasurer Gordon Hopper has sent the Society subscription notices out for the first time by email. This is faster and cheaper than sending them out by mail, but it does rely on us having the current email address for all our members. Please ensure that the Society has this information by either amending your subscription form, or emailing our memberships

secretary Stephen Cameron on stephen.cameron@csiro.au. If you haven't received your subscription notice yet, email our Treasurer on ghs.hooper@netspeed.com.au.

The Society has relied on the volunteer efforts of Murray Fletcher and the NSW Department of Primary Industries to develop, maintain and serve the Society web site. Thanks to Murray for this absolutely critical effort over many years. The Executive is planning to move the Society web site to a new server maintained by the Taxonomic Research and Information Network (TRIN, www.taxonomy.org.au) and has commissioned a site redesign. In particular, we are planning that entomologists will be able to join or pay their subscriptions through the website. We hope to have a sneak preview of the new site at our Annual General Meeting in Darwin.

Lastly, abstracts are due for the 2009 Conference and Annual General Meeting of the Society on July 25. Society members who have taken a look at the Conference website (www.evolutionbiodiversity2009.org) will realise that they recoup almost half their yearly subscription to the Society through a discounted registration for the conference. I look forward to seeing a big turn out of members at the conference.

David YEATES
Vice President

OBITUARY
Dr Lindsay Barton Browne
1928 – 21 March 2009

As one of Australia's leading scientists, Dr Lindsay Barton Browne will be remembered for his outstanding contributions to the Australian and international scientific community and as one of the best mentors of young scientists we have had in CSIRO.

Lindsay was born on the 8th of May 1928 in Adelaide. He graduated from the University of Sydney with First Class Honours and a University Medal, a rare honour, in 1951 and then completed his PhD at the University of Sydney in 1954. His PhD studies on mating behaviour of the Queensland fruit fly set the stage for a long string of subsequent PhDs which explored the behaviour and genetics of this insect.

In the same year, he joined CSIRO Entomology in Canberra to work on the behaviour and sensory physiology of insects and quickly developed an international reputation for his work. As early as 1958 he was awarded a Fellowship to Johns Hopkins University, Baltimore, USA and, in 1959, an eminent overseas colleague described him as an 'outstanding behavioural physiologist'.

Whilst in Baltimore, Lindsay married Judy on March 8 1958 – establishing a lifelong relationship which saw Judy also become one of the CSIRO family and which in subsequent years saw the birth of their three children, Allison, Fran and Peter.

A younger Lindsay at work. (Photo courtesy CSIRO)

Through his career, Lindsay became an internationally recognised leader in the field of insect behaviour, driving considerable innovation and outcomes through his significant contributions on the Queensland fruit fly, Australian sheep blowfly, pasture insects, Australian plague locust, dung beetles and, in his retirement, the cotton bollworm, a major cotton pest. The study of insect behaviour has generated a number of the "growing points" in modern applied entomology, and for many years Lindsay's research into the intricate details of feeding, maturation, mating and oviposition behaviours of pest species was world leading. His pre-eminence and impact is reflected through his prodigious publication record and the extensive collaborations he developed with other global science leaders in his field, among them Prof. H.H. Shorey, University of California, Riverside, Prof Vincent Dethier, Princeton and Dr Reg Chapman, University of Arizona.

Dr. Barton Browne was always rigorous in his research, original in his thought and had a sound critical faculty which he passed on to many others through his extensive mentoring of young scientists, me included. Lindsay voluntarily devoted much time and energy to assisting young scientists in CSIRO and in other institutions with the interpretation of their research results and with setting the direction of their future research. This contribution to Australia's scientific future will be a lasting legacy. His personal attributes of openness, compassion, determination and focus on excellence in all aspects of his life only added to the influence he had on others. He was always available to colleagues and, in encouraging them to look beyond the boundaries of their discipline, helped them to solve many questions in their research. A lasting memory for many will be Lindsay's encyclopaedic knowledge of the literature and his legendary reference card system, along with the thrill of morning coffee in the "fly lab".

After a long and distinguished career Lindsay retired in 1987 having attained the level of Chief Research Scientist in CSIRO. During the late 1970's and early 1980's he served as Assistant Chief of CSIRO Entomology, during the reign of Dr Doug Waterhouse as Chief, but he then returned to where he preferred to be, in the laboratory doing his research.

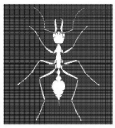
Dr Barton Browne's contribution to Australian science did not stop with his retirement in 1987. He continued as an Honorary Fellow in CSIRO Entomology, both in Canberra and at the CSIRO Long Pocket Laboratories in Queensland, until 2005 when ill health forced him to resign his Honorary Fellowship. While an Honorary Fellow he continued his research on insect physiology in collaboration with several distinguished overseas scientists as well as his Australian colleagues…and continued to publish. During this time, he also made significant contributions to two of the early Cooperative Research Centres, Tropical Pest Management and Temperate Hardwood Forestry, served as

President of the Entomological Society of Queensland and coordinated a course in insect physiology at the University of Queensland.

Dr. Max Whitten (former Chief of CSIRO Entomology) noted that 'While it was Lindsay's outstanding intellect, knowledge and experience that enabled him to develop his own successful career as an internationally renowned biologist, it was his willingness to share this expertise and to help others that drew young scientists to him. Lindsay Barton Browne's willingness to help other scientists, both young and established, without tangible reward makes him one of Australia's genuine unsung heroes'.

Lindsay touched the lives of many people in the science community but particularly in CSIRO Entomology. His loss is sorely felt by his many friends and colleagues who will always appreciate the honour of having known him.

Gary FITT
Deputy Chief
CSIRO Entomology



NEW MEMBERS

We are very pleased to welcome to the Society the following new batch of members.

Elected May–July 2009

Post graduate students:

Di Bell, Charles Darwin University, based in Alice Springs, is investigating how climatic factors (especially rainfall and temperature) affect the phenology of Coleoptera in central Australia.

Pampathy Gurulingappa, School of Biological Sciences, University of Sydney. He has worked on development of insect pest resistant crop cultivars and is researching interactions between entomopathogens and insect pests.

Ashfaq Sial, is currently at Washington State University, USA, where he is a PhD student.

Andrea Cazano is an entomologist with experience in insect conservation and invertebrate biodiversity assessment in Victoria; she is currently undertaking postgraduate studies on the ecology and conservation of the Eltham Copper Butterfly.

Full members:

Guy Westmore, DPIWTAS, has worked on vector resistance, particularly in relation to resistance of the thrips vectors of Tomato Spotted Wilt Virus in potato.

Markus Riegler, recently joined the University of Western Sydney's Centre for Plant and Food Science. Markus' research focuses on symbiotic interactions of insects, their importance in insect ecology and evolution as well as their application for biological control. He has worked on *Wolbachia* symbionts of tephritid and drosophilid fruit flies, mosquitoes and bark beetles.

Peter Hudson, Collection Manager, South Australian Museum. Peter's main interest is in terrestrial invertebrates living on the surface of normally dry salt lakes, and has worked on wolf spiders of these systems and aquatic invertebrates of the Lake Eyre Basin.

Mark Stevens, now at the South Australian Museum, is particularly interested in the effects of dispersal and long-term habitat fragmentation on patterns of regional genetic divergence in terrestrial and aquatic invertebrates, and uses a combination of molecular, morphological, and ecological approaches.

Mark Schutze, Queensland University of Technology. Mark has published on the chrysomelid beetle, Paropsis atomaria and on evolution of mating behaviour in antlered flies of the tephrytid genus Phytalmia. He is currently a Post-Doctoral Research Fellow with the CRC for National Plant Biosecurity, working in a team using various approaches to resolve the economically significant tephrytid species, Bactrocera dorsalis.

Mark Greco, a bee worker with a strong interest in sharing his excitement for this group of insects, is currently researching Apis mellifera colony development at the Swiss Bee Research Institute in Bern; Mark is a keen proponent of Diagnostic Radioentomology for the non-invasive study of insects.

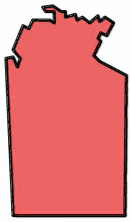
David Lilly is currently Technical Support Manager for Ecolab Pest Elimination, to which position he moved from the University of New South Wales. His various positions have been in applied entomology, looking at control and potential resistance of various domestic and agricultural pest species. David is working part time towards a masters Degree in Entomology

through the University of Queensland.

Helen DeGraaf, is at SARDI, and working on the project 'Revegetation by design — promoting the 'on the farm' use of native vegetation as agents for 'natural pest control''. Helen studied spider feeding behaviour for her Honours project, and has broad entomological interests, especially in conservation areas and education.

Alice WELLS
Honary Secretary

ENTOMOLOGY AROUND AUSTRALIA



NORTHERN TERRITORY

Department of Natural Resources, Environment, the Arts and Sport
Biodiversity Unit

At the beginning of the year, Raghu started his new position with Sustainable Plant Industries in the Department of Regional Development, Primary Industry, Fisheries and Resources. Although Raghu won't be doing strictly entomological research, **Chris Palmer** and others in the Biodiversity Unit are discussing potential collaborative projects with him. Brisbane's loss is Alice Springs's gain!

In April, Chris welcomed a visit by **Andrew Beattie** (Macquarie University) to Alice Springs, and together they collected thrips for Andrew's project investigating the role of microbes in the evolution of sociality. Since then, Chris has been taking advantage of the cool arid winter by writing up various projects, as well as counting and curating thrips collected over the summer for a separate project with **Laurence Mound** (ANIC) looking at grasses and the communities of thrips they support. Long occupation of the office and lab will continue until September, when temperatures in Alice Springs will regularly reach the thirties once again and the period of more productive fieldwork can re-commence. Also this September of course is the society's 40th AGM and scientific conference (25–28th). Don't forget that the provisional program, symposia themes and organisers and important dates are all on the website. Log on to http://www.evolutionbiodiversity2009.org/ for more details. Darwin may never recover from this influx of biologists…..

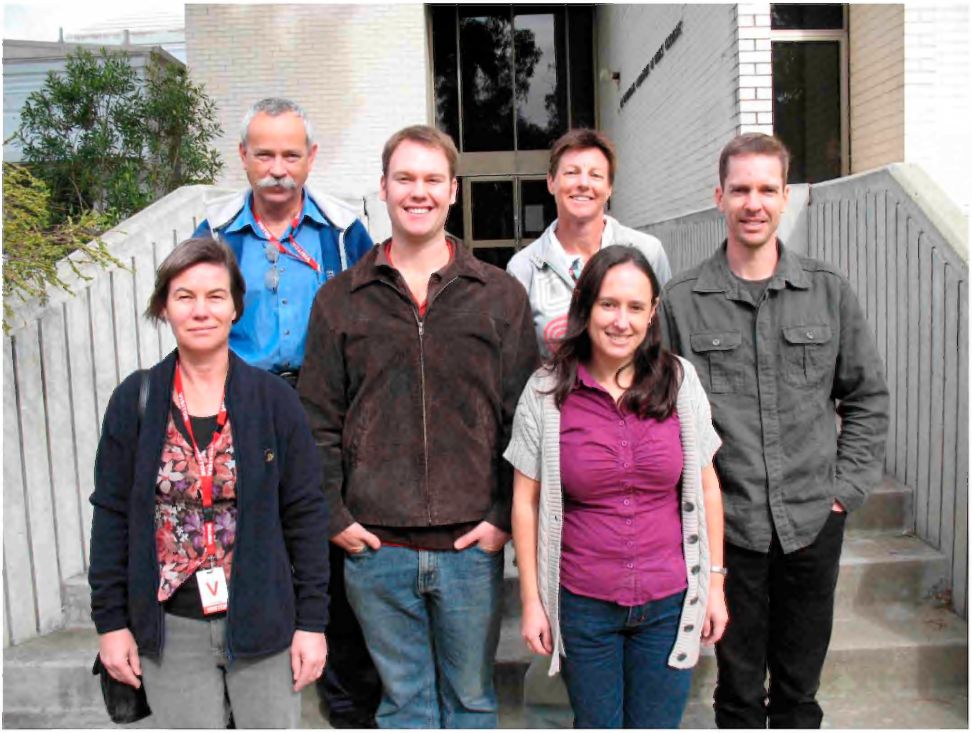
Chris PALMER
NT Regional Councillor

AUSTRALIAN CAPITAL TERRITORY

ANIC

The ANIC beetle laboratory has been a very busy place over the last few months. **Adam Slipinski** travelled to Berlin, Paris, and London to look at types of Coccinellidae and some other beetle families that he is currently revising. Work on the Coccinellidae has entered a new phase with **Anne Hastings'** project to produce an expanded and revised LucID key to genera, incorporating large numbers of new illustrations. The key will be made available through the existing Coccinellidae web site, and also through the Taxonomic Research and Information Network (TRIN), who are jointly supporting the project.

PhD student **Jiahui Li** is also part of the Coccinellidae team, working on a molecular and morphological phylogeny of the Tribe Coccinellini, with support from the National Natural Science Foundation of China. Pat Bouchard and Anthony Davis, from the Canadian National Collection in Ottawa, visited ANIC to talk with **Adam Slipinski** and **Rolf Oberprieler** about their massive project to compile a new catalogue of family-group names of beetles. The team plans to update and expand the existing Lawrence and Newton (1995) Families and Subfamilies of Coleoptera, incorporating the latest insights into beetle classification provided by molecular phylogenetic analyses. **Ainsley Seago** attended the Society for the Study of Evolution conference in Moscow, Idaho, where she spoke about biodiversity among fungus-feeding beetles, and visited Al Newton at the Field Museum in Chicago to work on several new genera of Leiodidae from Australia and New Zealand. We were saddened to learn that **Hannah Zimmerman**, wife of the late Elwood (Zimmie) Zimmerman, the weevil taxonomist formerly of



Participants in the **Trogoderma** *training course in ANIC. Left to right, Oonagh Byrne, Andras Szito, Mark Castalanelli, Joanne Holloway, Anita Lyons, Darren Peck (photo Bruce Halliday)*

the Division, passed away in May. Hannah and Zimmie were good friends of the Division, and had endowed a position in ANIC devoted to the study Australian weevils.

In June, the thrips room benefitted from a highly productive visit by **Ng Foo-Yong** from the Centre for Insect Systematics, Universiti Kebangsaan Malaysia. There are no identification systems available to the thrips of south-east Asia. This limits any work on thrips by biologists living in that biologically diverse area, and also poses a regular problem for Australian quarantine in identifying thrips on imported plants. To help rectify this situation, Alex (as Dr Ng is more commonly known) joined **Laurence Mound** in preparing a dichotomous key to over 60 genera, based primarily on material collected recently in Malaysia, including extensive collections made over the past two years during visits by Laurence and **Alice Wells** whilst teaching in that country.

The mite laboratory has been busy as usual. **Bruce Halliday** has completed or almost completed taxonomic studies on soil mites in the families Laelapidae, Ascidae, Uropodidae, and Eviphididae, with collaborators in Poland, The Netherlands, and Slovakia. Volunteer **Sandy Roy** is doing some hard labour curating and cataloguing a collection of over 8,000 slides of ectoparasitic mites from Australian grasshoppers. The collection was assembled by **Ken Key** (ANIC) and **Ron Southcott** (Adelaide) during the 1940's to 1960's, and contains large numbers of unidentified and undescribed species in the families Erythraeidae and Podapolipidae.

Tom Weir made another visit to the Australian Museum to identify and sort semi-aquatic bugs collected by the NSW EPA, including some valuable specimens from little-known groups. **Steve Shattuck's** lab has been very productive, with the publication of three taxonomic papers on different ant genera, and completion of the first manuscript arising from

Brian Heterick's work on *Iridomyrmex*. **Stephen Cameron** reports encouraging progress in sequencing DNA from termites and *Iridomyrmex*, and is celebrating the move of his molecular systematics laboratory into greatly expanded accommodation in the new CSIRO Entomology Biosciences Building.

In the Lepidoptera laboratory, **Bobbie Hitchcock** is presently in Europe to photograph types of some species of *Epiphyas* in the Natural History Museum, London, and to visit a pheromone laboratory in Helsinki, as part of her PhD project on light brown apple moth and related species. **You Ning Su** is extracting DNA from as many species as possible from a collection of Pyraloidea that was curated by **Michael Shaffer**, to contribute a valuable new set of moth data to the Barcode of Life Project. **David Yeates** attended a CHAFC meeting in Launceston in May, and an Environmental Futures working group meeting in Melbourne in June. Postdoc **Leigh Nelson** has begun sequencing the mitochondrial genome of *Fergusonia* flies, and sequencing plant markers for a phylogeny of Angophora. **Chris Manchester** has been sequencing and analysing mtDNA data from wingless micropezid flies that are commensal in *Cephalotus* pitchers in Western Australia.

In May we had a group of visitors taking part in a two-week training course in identification of Trogoderma beetles (Dermestidae). The course was facilitated by the Advanced Diagnosticians Development Framework, and conducted by **Andras Szito** (DAFWA) with the help of ANIC staff, particularly **Beth Mantle**, **Tom Weir**, **Cate Lemann** and **Laurence Mound**. The main purpose of the course was to train the participants to separate the exotic *Trogoderma* species from the largely unknown native Australian *Trogoderma* fauna, and especially to recognise the most significant exotic stored product pest, the Khapra beetle *Trogoderma granarium*, which poses a significant threat to the Australian grain storage industry. The participants practised collecting, trapping, pinning, slide mounting and dissecting both adults and larvae. The participants were **Joanne Holloway** (NSW DPI), **Anita Lyons** (AQIS), **Oonagh Byrne** (DAFWA), **Darren Peck** (AQIS) and **Mark Castalanelli** (DAFWA), all of whom achieved at least a 90% success rate in the identification test at the end of the course. Funding for the course was provided by the Office of the Chief Plant Protection Officer in the Australian Government Department of Agriculture, Fisheries and Forestry, and the CRC for National Plant Biosecurity.

Other recent visitors include **Ai-Ping Liang** from the Institute of Zoology, Chinese Academy of Sciences, who came to review the Australian spittle bugs of the family Cercopidae; **Wojciech Pulawski** of the California Academy of Sciences, who delivered some types of recently-described Australian Hymenoptera, and spent some time identifying Vespidae and Sphecidae; and **Lynette Forster** of Forestry Tasmania, who came to identify some Tasmanian beetles and to work on her description of a new species of Leiodidae.

The CRC for National Plant Biosecurity's Remote Microscopy Project has continued to expand, with a new node now operating in the NSW DPI in Orange. **Michael Thompson** demonstrated the system at the ASEAN Diagnostic Network Planning Workshop in Vientiane, Laos, as a step towards establishing nodes of the Remote Microscope Network in Thailand, Laos and Singapore later in the year. The use of remote microscopy in combination with web-based collaboration programs as a tool for diagnostic training is also on the horizon. **Anita Lyons** from AQIS is continuing to use remote microscopy to assist with quarantine diagnosis, drawing on the taxonomic knowledge and resources of ANIC.

Apart from his projects on the ecology of soil invertebrates, **Matt Colloff** has been quietly working on soil mite taxonomy for the last ten years, as well as pursuing his other major interest in the biology and control of house dust mites. These mites, mainly in the family Pyroglyphidae, are a major cause of allergy and asthma all over the world, especially in humid cities like Sydney. Matt's work on this subject has culminated in the publication of his book Dust Mites (CSIRO Publishing and Springer, ISBN 978-90-481-2223-3), which was launched in a ceremony in CSIRO Entomology on July 9th. The previous Chief of Entomology, **Joanne Daly**, spoke of the importance of this comprehensive new book as a compilation of an incredibly wide variety of information about dust mites, from

their taxonomy and ecology, life cycles, allergenic importance, and practical methods of control.

Donald Hobern is celebrating the announcement of $30 million in new funding for the Atlas of Living Australia program. The Atlas of Living Australia is a five-year project funded under the Australian Government's National Collaborative Research Infrastructure Strategy (NCRIS). It is developing an electronic biodiversity information management system that will link data from natural history collections, agricultural reference collections, and field observations, as well as molecular and ecological data, in collaboration with government departments, universities, and other research institutions. Further details are available at http://www.ala.org.au/.

A strong team of ANIC staff took part in the Second Annual Forum and Workshop of TRIN, on the NSW south coast in April. The agenda included updated reports on specific research projects, and extensive discussions of the latest ideas on ways to accelerate the taxonomic process, by the use of barcoding, cybertaxonomy, improved interactive keys, and collaborative research through the use of improved communication technology. On a related subject, we had a visit from **Norm Johnson** of Ohio State University. Norm spoke about his work on Platygastroid Hymenoptera, which is part of the NSF Planetary Biodiversity Inventory Program. The Program is using information technology to facilitate close collaboration among a multi-national team of researchers to integrate data from specimens, characters, images, molecular data, and literature, and accelerate the process of species discovery and description.

Bruce HALLIDAY

CSIRO Entomology

Jane Wright has retired from CSIRO Entomology after 25 years working on African dung beetles, stored product insects, and lately, divisional administration. Jane intends to return as an honorary fellow to resume her work on African predatory dung beetles and write some stored products papers. She continues to serve as the AES Public Officer and Privacy Officer and operate the AES Shop.

School of Physical, Environmental and Mathematical Sciences, The University of New South Wales at the Australian Defence Force Academy, Canberra

Alistair Drake retired from UNSW at the beginning of July. However, he is returning as a Visiting Fellow and will continue his research on the use of radar to observe insect migration in collaboration with the Australian Plague Locust Commission. Alistair has also been appointed to a three-year visiting position in the University of Canberra's Institute of Applied Ecology. He spent most of the first half of 2009 in an office there, drafting the book on radar entomology he is co-authoring with UK collaborator **Don Reynolds**. Although IAE's research is mostly concerned with vertebrates, he has talked with two students who are undertaking insect-based projects.

In January, Alistair and **Haikou Wang** (APLC) travelled to Bourke (NSW) to retrieve components from the Insect Monitoring Radar there that was toppled over by a storm just before Christmas. Damage was surprisingly limited and work is underway to put the unit back into operation.

David Hunter has been at the 10th International Congress of Orthopterology in Turkey. About 200 participants from all over the world discussed a wide variety of topics including locust and grasshopper IPM, biology, taxonomy and communication at Antalya on the beautiful Mediterranean coast.

Trudi WHARTON
ACT Regional Councillor

QUEENSLAND

SOUTH-EAST

Army Malaria Institute (AMI)

Bob Cooper spent all of May in Vietnam conducting entomological surveys to assess the susceptibility of the malaria vectors to pyrethroids in Truong Xuan commune in central Vietnam. The work is a

collaborative effort involving **Do Manh Cuong** of the Entomology Department, Military Institute of Hygiene and Epidemiology, Hanoi.

Steve Frances spent a few days in mid May in northern Queensland, visiting the Cowley Beach Military training area to collect *Anopheles farauti*. During the visit, he was hosted by **Richard Piper** at Cowley, and was able to visit Bill Farnsworth in Innisfail, and **Scott Ritchie** and **Brian Montgomery** at TPHU in Cairns.

During April to June, **Lynda Perkins** and **Nigel Beebe**, University of Queensland, used the AMI quarantine insectary to complete some work on attraction of mosquitoes to oviposition sites. In February, **Jetsumon Prachumsri,** from the Armed Forces Research Institute for Medical Sciences, Bangkok, Thailand, visited to discuss mosquito/animal models for malaria, and in early March, US Army entomologist, **Amy Korman**, from the Walter Reed Army Institute of Research, visited AMI to discuss potential collaborations.

Bugs for Bugs, Munduberra

Dan Papacek reports that Bugs for Bugs has 'adopted' a Peruvian entomologist. **Alberto Guanilo** approached Dan last year with a request for work experience. Alberto has been with Bugs for Bugs since February and is enjoying it here so much that Dan has arranged a work visa that will allow him to work with us for 4 years.

Alberto completed his masters in Brazil where he specialised in agricultural acarology and classical biological control. He is especially interested in the Phytoseiid mites but has already demonstrated broad taxonomic skills. He is very genial and has made himself instantly popular with the rest of our team.

School of Biological Sciences, UQ

The Entomology Curriculum Australia development team met at UQ from 8-10 July. The first four third-level courses are on track to be rolled out in 2010. For more information see the Entomology Australia website (www.entomology.edu.au/).

Several UQ entomologists have been involved in the Genetics Society of Australia (GSA) meeting in Brisbane (7-10 July, UQ). **Beth McGraw** was an organiser, and members of several groups (**Chenoweth, McGraw and O'Neill** labs) presented talks and chaired sessions.

New Bugs for Bugs member, Alberto Guanilo

David Merritt attended the 18th Australasian Conference on Cave and Karst Management at Margaret River, Western Australia, where he presented a talk entitled *Bioluminescence in Cave Glow-worms: Signs of Altered Circadian Rhythmicity*, co-authored with Arthur Clarke. **Claire Baker**, who completed her PhD on glow-worm phylogenetics and species identities at UQ in 2004 also attended the meeting. **Rebecca Morley's** (Honours student in Merritt lab) project on light receptivity in glow worms has been progressing well.

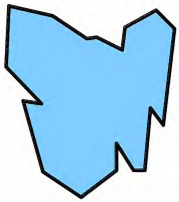
Lindsay Popple (**Gimme Walter's** lab) has completed his PhD thesis on cicadas and accepted a postdoctoral position with **Mike Crisp** at The Australian National University in Canberra. He will be shifting his attention to plant phylogeny and evolution.

Nigel Beebe is off to the EMBO workshop "Molecular and Population Biology of Mosquitoes" in Crete in July. He has two Honours students (Rayon and Weibin) starting when second semester begins at the end of July. Each will be studying the evolution and distribution of a cryptic species of malaria vector (*Anopheles*) in Papua New Guinea.

Penny Mills (**Cook** lab) has completed her Honours degree and presented her work at the GSA meeting. Penny used morphological, chromosomal and DNA sequence data to determine if the scale insect, *Apiomorpha minor*, represents a cryptic species-complex. The molecular data showed the presence of at least six cryptic species, several of which were morphologically distinguishable. Diploid chromosome counts did not correspond directly with the six cryptic species, with considerable variation present within each of the genetic groups. The extent of chromosomal variation may indicate additional species to the six identified in her study.

Tony CLARKE
Qld Regional Councillor

TASMANIA



University of Tasmania, *School of Agricultural Science and Tasmanian Institute of Agricultural Research*

Geoff Allen and **Paul Walker** are still waiting to hear the outcomes of funding for various research projects. To date, they have been successful in gaining funding from Horticulture Australia Ltd to work on the role of root volatiles in host location by white-fringed weevils and for **Stephen Quarrell's** PhD study on the chemical ecology of European earwigs. Geoff and Stephen were also successful in obtaining additional funding from the Holsworth Wildlife Research Endowment to map the distribution of this invasive insect in Australia and to determine which sub-species is present. Genetic analysis of earwig populations in Europe has identified two cryptic species which have different reproductive strategies (one clutch per year in populations residing in alpine zones as opposed to two clutches per year in populations residing below 1200 m). Which sub-species is present in Australia is unknown but, in collaboration with Prof. **Thierry Wirth** at the Natural History Museum in Paris, Stephen will collect earwigs from across Australia for DNA analysis. Stephen is looking for any information or records on the distribution of earwigs on the mainland. If you can assist, please contact him at: stephen.quarrell@utas.edu.au.

University of Tasmania
School of Geography

Peter McQuillan reports that he has a new honours student, **Egay Tan**, looking at the dynamics of the seed borer insect community feeding on alpine *Orites* spp. (Proteaceae), which consists mostly of weevils and tortricids. Another student of Peter's, **John Evans**, has completed a study on the distribution of Jack Jumper (*Myrmecia pilosula* species complex) nests in Hobart. These aggressive ants are found in gardens as well as in the bush and typically walk with a hopping motion. They frequently forage on flowers, leaves and branches and will readily sting if their path is obstructed. In areas where Jack Jumpers are common, population surveys have shown that between 2 and 3 per cent of people have had generalised allergic reactions, and in around half of these people the reactions can be life-threatening. John successfully built a predictive model for nest distribution and a surprising finding was that they were most likely to occur within 3 metres of a tree. John has now accepted a PhD scholarship at the University of Otago in New Zealand. Peter is also currently finalising a report on threatened species of geometrids in South Australia for the Department of Environment & Heritage.

Tasmanian Museum and Art Gallery

As reported in the last edition of Myrmecia, **Cathy Young** was recently appointed as the senior curator of Zoology at the Tasmanian Museum and Art Gallery (TMAG). Cathy has a

A new species, **Oenochroma barcodificata** ***(Geometridae)***

background in Lepidoptera research, in particular the Australian Geometridae. Cathy's previous employment was senior entomologist with the Department of Primary Industries and Water. A new species of Geometridae has been described in a paper by Cathy and colleagues from Germany, Canada and the CSIRO. Specimens of the moth were collected during the biennial Forum Herbulot held in Hobart in 2006. The moth belongs to the genus *Oenochroma*, a large genus of geometrid moths, with a widespread distribution in Australia. Two species were previously known occur in Tasmania, *O. vetustaria* and *O. vinaria*. Barcoding of specimens of *O. vinaria* from Tasmania, indicated that there were most likely two species in the *vinaria* group. Morphological examination of genitalia and some superficial characteristics confirmed the existence of the cryptic species. All life stages of the new species were described in the paper, which will be published later in the year.

Caterpillar of **O. barcodificata**

A collection of southern Australian native moths was recently donated to TMAG by **Michael Fletcher.** This collection of approximately 600 moths has been accumulating over around 40 years and is a welcome addition to the museum native Lepidoptera holdings.

Laurie Kaila and **Jaako Kuilberg** of Finland recently spent two weeks in Tasmania collecting material for a study on the moth family Gelichiidae. Tasmania has many undescribed native species in this family of the micro Lepidoptera.

Bobby Hitchcock, who is undertaking a PhD on the genus *Epiphyas* (Tortricidae), supervised by **Marianne Horak** at the Australian National Insect Collection, recently spent time collecting specimens in Tasmania.

The stored food product pest *Necrobia rufipes* (Coleoptera: Cleridae) (redlegged ham beetle) was recently detected in dried fish food in southern Tasmania. This exotic, cosmopolitan beetle has only been reported once before in the Tasmanian environment. Previously it was found in a sheep carcass in Bothwell in 1976.

Necrobia rufipes, ***a stored food product pest recently found in dried fish food.***

Forestry Tasmania

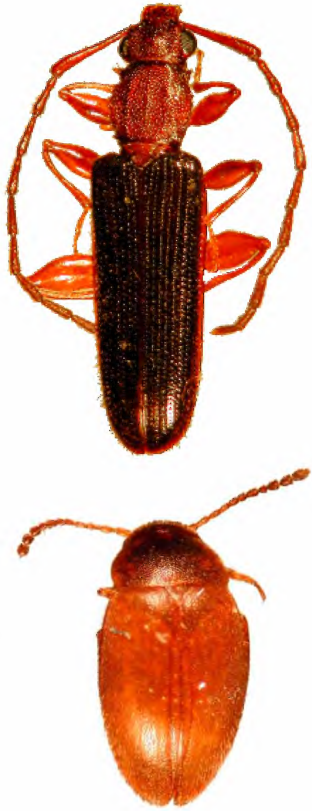
Warra log decay project – the final beetle tally: In February this year, a decade of sampling invertebrates living in decaying logs at Warra came to an end when the last emergence-traps were ceremoniously removed (see photo next page).

Lynne Forster has now completed sorting beetles from the last of the 6,608 samples, and the data, comprising 17,309 beetles, are now ready for analysis. Over the years, the project has employed many beetle-sorters, resulting in an understandable accumulation of inconsistencies in the way individuals were allocated to species. Lynne has done a fantastic job of bringing order back into the project data, through diligently sorting through the collection, comparing specimens with 19th Century descriptions, and sending others away to taxonomic experts. For a while, every day brought news from Lynne of more lumping or (more usually) splitting of morphospecies; of name updates (e.g. what we used to call *Uleiota australis* now goes under the name of *Macrohyliota bicolor* see photo); and of the new recognition of already long-described species and of species that remain undescribed and are clearly new to science. In all, some 18% of the current project tally of 448 beetle species owe their current species allocation in the Tasmanian Forest Insect Collection to Lynne's recent revisions.

While Lynne would be the first to admit that a taxonomist's work is never done, she's quietly confident that the current list will prove 'fairly stable' While analyses have scarcely begun, it is clear that the assemblages of beetles in the logs include a number that are dependant on the fungi growing on logs (e.g *Nargomorphus leanus*), rather than the rotting wood itself. Additionally, some species that can be found in high numbers when large rotting logs are split open were hardly detected in this project. These include *Prostomis atkinsoni* and *Dryophthorus* species, which are to be the subject of future studies at Warra. The difficulty in detecting such species through the use of emergence-traps suggests that they may pass their entire life-cycle within rotting logs.

Lynne is soon to embark on the next stage of her career, but she's not going far: she is now a doctoral student at the University of Tasmania. As part of a larger ARC-Linkage project with industry partner Forestry Tasmania and with researchers from both the University of Tasmania and Monash University, she will be using molecular techniques to explore the dispersal ability of saproxylic beetles and their ability to make use of different forest landscape configurations in the Southern Forests Experimental Forest Landscape.

Through the efforts of Lynne and others, an increasing number of photos of Warra species, including the ones pictured right, are available on the Warra web-site (http://www.warra.com/warra/species_index.html).



The saproxylic beetle* Macrohyliota bicolour (top); *fungivorous saproxylic beetle* Nargomorphus leanus (bottom). *Photos Lynne Forster. More photos can be found online at the Warra web-site.

Tasmanian deadwoodological expertise in demand in Sweden: For the second time in four years, **Simon Grove** has travelled to Sweden as an invited expert in matters deadwoodological. Four years ago, it was to provide an external assessment of a long-term research program focused on catering for dead wood biodiversity in Sweden's managed forests. This time, the trip was to act as the 'opponent' for doctoral student **Nicklas Jansson's** thesis 'defence' at Linköping University. The Swedish system demands that their doctoral students wrap up their studies by giving a public presentation of their work, which is followed by a short presentation by the 'opponent' on how their work fits into the bigger picture. This over, the main part of the event is a public discussion between the opponent and the student on the nitty-gritty of the student's work. The aim of the opponent is to tease out the strengths and weaknesses of the researcher, so that the examiners (sitting in the audience) can gauge whether the student has developed and demonstrated a sufficient level of expertise to be granted a doctorate. It's all very different from the Australian approach, but – despite the pressure it puts on students – has the advantage of giving public recognition and a sense of 'closure'. Needless to say, Nicklas, who had studied saproxylic beetles living in hollow oak trees in the culturally significant 'Eklandskap' (oak landscape) south of Linköping, passed with flying colours, and the day ended with a big party. Simon was also called upon to present a seminar on "What role for beetle research in sustainable forest management in Tasmania and elsewhere?", as well as to meet individually with students and staff with overlapping research

interests. It seems likely that the links made during this trip will prove valuable as Simon and others at Forestry Tasmania develop their landscape ecology research programme in the Southern Forests Experimental Forest Landscape over the coming few years.

It was not all indoor work though. Nicklas and his supervisors **Per Milberg** and **Karl-Olof Bergman** put aside the weekend to show Simon around their landscape, including a visit to some of their best study-sites (Photo SG4, SG5).

Simon Grove inspecting a hollow oak-tree in Sweden with Karl-Olof Bergman

Other news from Forestry Tasmania: present and/or past Forestry Tasmania employees **Simon Grove**, **Sue Baker**, **Marie Yee**, **Kevin Bonham**, **Lynne Forster** and **Dick Bashford** have all co-authored research papers on an entomological theme that have just been published. These include:
Baker, S.C., Grove, S.J., Forster, L., Bonham, K.J., Bashford, D., 2009. Early responses of ground-active beetles to alternative silvicultural systems in the Warra Silvicultural Systems Trial, Tasmania, Australia. Forest Ecology and Management 258, 444-459.Grove, S., Bashford, R., Yee, M., 2009. A long-term experimental study of saproxylic beetle (Coleoptera) succession in Tasmanian Eucalyptus obliqua logs: findings from the first five years. In: Fattorini, S. (Ed.), Insect ecology and conservation. Research Signpost, Kerala, India, pp. 71-114.

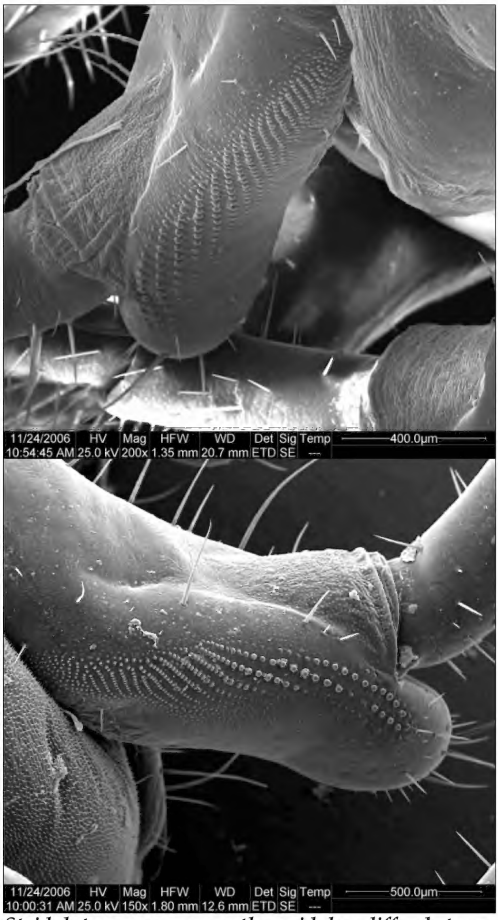
Tree showing insect-box that Nicklas demonstrated could support many of the species associated with real tree-hollows, if primed with the right concoction of sawdust, oatmeal and dead chickens! Let's be grateful that we should never get to the stage of requiring this sort of conservation intervention in Tasmania's production forest landscapes. (Photo: S. Grove)

Simon GROVE

University of Tasmania

Belinda Yaxley has recently spent a lot of time in the lab, dissecting stag-beetle larvae under **Peter McQuillan's** supervision as part of her doctoral research, sponsored by Forestry Tasmania, on the autecology of saproxylic beetles

in the Southern Forests Experimental Forest Landscape. While larvae of most species are easily identified in the field, those of the two standard Lissotes (stag beetle) species in her study-area appear identical to the naked eye. Belinda collected many of these, and stored them in the freezer, while she worked on finding a way to separate the two species morphologically.


11/24/2006 HV Mag HFW WD Det Sig Temp 400.0µm
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11/24/2006 HV Mag HFW WD Det Sig Temp 500.0µm
10:00:31 AM 25.0 kV 150x 1.80 mm 12.6 mm ETD SE

Stridulatory organs on the mid leg differ between two species of* Lissotes *(stag beetle). Stridulatory organ of* L. cancroides *(above) and* L. menalcas *(below). (SEM: B. Yaxley)

Using a scanning electron microscope, she came up with clear structural differences in their stridulatory organs (the larvae apparently use these organs to produce sound). The stridulatory organ on the mid-leg of *L. cancroides* is more complex and detailed than that of *L. menalcas* (see photo).

Belinda is now able to reallocate all her larval records to the correct species, which will help in the next stage of her work, which involves developing predictive models of species distributions with supervisor **Simon Wotherspoon**. These will be based on the species occurrence data and corresponding environmental and geographical data that she collected across her study-area.

Belinda, at least, considers these to be 'structurally really different' from each other.

Other Tasmanian news

David de Little has a colleague in Chile who would like to know if anyone is working on (or knows of anyone working) *Thaumastocoris peregrinus* (Hem.: Thaumastocoridae), and the egg parasitoid? David believes this insect feeds on the undersurface of juvenile E*ucalyptus globulus leaves* and causes a yellowed mottled effect that can be mistaken for nutrient deficiency. If anyone can assist, please contact David at: dcdelittle@bigpond.com.

Paul WALKER
Tasmania Regional Councillor

WESTERN AUSTRALIA

Department of Agriculture and Food, Western Australia (DAFWA)
South Perth

Marc Widmer reports that a lady from Swanview brought in a camphor block infested with grubs. She found many of these grubs in her bedroom and in her clothes drawer. The lady was double checking that they were not bedbugs, or some other such "terrible pest". They were identified as Indian meal-moth (*Plodia interpunctella*) larvae, and she surrendered the camphor block because, as she said, "it was pretty useless anyway". Interestingly, the grubs were not only in the camphor 'station', but appeared to be feeding from it.

Three weeks later, the fat and healthy larvae were alive and well, and either still feeding from the block, or beginning to pupate (within the cellophane bag housing the camphor block). The

Plodia will be reared out and it will be interesting to see if a whole generation of meal moth can be reared on the stuff.

One thing we now know – don't recommend camphor as a treatment for *Plodia*.

Indian meal moth larvae* (Plodia interpunctella) *quite like the taste of camphor. (Photo M. Widmer)

Mike Grimm attended the 40th meeting of the International Research Group on Wood Protection in Beijing and presented a paper on the European House Borer Eradication Program in Western Australia.

The Entomology Diagnostic Group produced the first edition of the Barrow Island Ute Guide to Non Indigenous Species of arthropods of Barrow Island for Chevron as part of the biosecurity requirements for the Gorgon Gas Production project. It is the first of its kind representing a new approach to industrial activities in 'A' class nature reserves. The Ute Guide is designed for use by Chevron employees and contractors as a field reference guide to assist them with noticing and observing arthropods that may be exotic on Barrow Island.

The Barrow Island Ute Guide. DAFWA.

Andy Szito conducted a *Trogoderma* identification course in Canberra over two weeks, with 5 participants undertaking training. The course is one of the first outputs of the CRC project for the National Reference Laboratory for *Trogoderma* Diagnostics being set up by the Department of Agriculture and Food Western Australia, in Perth.

The CRC for National Plant Biosecurity project to implement a Surveillance Simulation Platform continues its development towards the generic simulation work. **Juan Adeva** has started working on some initial basic models for the *Bactrocera* spp and corresponding implementation of a simulation software system. As a part of this project at DAFWA **Maria Majer** and **John Botha** are working on population dynamics of fruit flies using *Bactrocera dorsalis* and *B. tryoni* as models. **Maria Majer** will be presenting a poster at the 2009 International World Conference on Ecological Restoration. The poster is entitled "Awareness of the Asian gypsy moth threat to Australia's eucalyptus plantations and restoration programs". The conference will be at Perth Convention & Exhibition Centre, Western Australia during August 2009.

James Atlmann from Biological Services in South Australia visited **Lachlan Chilman** (ManChil IPM), **Sonya Broughton** and **David Cousins** in June. Whilst in WA, James released parasitic wasps (*Metaphycus* spp.) of black scale (*Saissetia oleae*) into a badly infested olive grove. Lachlan has been developing and refining mass-rearing of *Orius armatus*, a native predator of

Western flower thrips (WFT), *Frankliniella occidentalis*. *O. armatus* is expected to revolutionise control of WFT, particularly for the greenhouse industry. Sonya, David and **Jessica Harrison** have been busy evaluating the effect of various insecticides on *O. armatus* for Lachlan.

Adult **Orius armatus** *sucking on a western flower thrips nymph (above),* **O. armatus** *nymph (below). (Photos: S. Broughton)*

Modika Perera from the DAFWA Biotechnology group was invited to deliver two lectures to the third year Plant Biotechnology and Proteomics students at Murdoch University while **Mike Jones**, the unit co-ordinator was in overseas. The lectures entitled "Introduction to insect pests of crops" and "Transgenic resistance to insect pests - a case study based on Bt cotton".

Manjimup Horticulture Research Institute

Things in horticulture in the lower south west of WA are in winter mode but **Stewart Learmonth** still managed some field activities. Eucalyptus weevil infestation in apples is a risk for export apples and some testing of fumigation with ethyl formate with help from CBH was undertaken - some kill but not enough. Work will continue. Stewart was lucky enough to travel to Indonesia recently for more sunshine as he checked out pest management in Indonesian potato crops as part of an ACIAR project.

Curtin University of Technology
Department of Environmental and Aquatic Sciences

The Department recently had a visit from **Garry Webb** (Sumito Chemicals) and **Theo Evans** (CSIRO Entomology) to assist honours student **Jessie-Leigh Brown** set up a field trial to eliminate native ants from forest plots. Jessie-Leigh is investigating the influence of Australia's renowned diverse and abundant ant fauna on surface-active invertebrates. Early signs are that the baits are doing their job. A second honours student has also embarked on an entomology project; this is **Cameron Brumley** from the WA Department of Agriculture and Food, who will be evaluating host preferences of Lettuce Aphid on locally grown lettuce plants.

Anita Lyons has now completed her PhD thesis, which concerned the biodiversity value of oil mallees planted in paddocks, and, as recent photos in Myrmecia attest, is now working for CSIRO Entomology in Canberra. **Matt Williams** of the WA Department of Conservation and Environment (DEC) has also completed and been awarded his PhD, which concerned the diversity of butterflies and day-flying moths in urban habitat remnants. Matt is now continuing with his substantive position at DEC. Barrow Island invertebrate specialist, **Karl Edwards**, has also departed the Entomology lab to take up a position with Chevron Australia Pty Ltd. Karl will act as the facilitator between the Company and outside consultants who will be responsible for surveillance on the Island associated with the proposed Gorgon Gas Project. In the meantime, **Ruben Flores Vargas** is continuing with some of the Barrow Island curatorial work. **Aaron Gove** has recently returned to Curtin to work with **Jonathan Majer** on papers concerning myrmecochorous ants. Aaron will also be delivering the third year Ecology course, while Jonathan spends his time sitting on committees and signing off on documents!

Brian Heterick is keenly awaiting proofs of his monograph on the ants of South-Western

Australia. At the time of writing, these are in the mail. This production will be in hardcover, and the final book will be made available to interested parties in an official launch. A smaller, collaborative article by Brian and DEC researchers on the ants of the Pilbara and their ecology is also in the pipeline, having already passed through the hands of three reviewers.

Brown sowthistle aphid is being studied by Cameron Brumley for his Honours project. (Photo P. Scanlon)

Murdoch University
State Agriculture Biotechnology Centre (SABC)

Ken Narva, a research leader in the Discovery section of Dow AgroSciences, Indianapolis, USA, recently visited the Ag Biotech company Nemgenix, based at the WA State Agriculture Biotechnology Centre (SABC) at Murdoch University. Dow AgroScience is a top-tier agricultural company that provides innovative technologies for crop protection, pest and vegetation management. Ken gave a very interesting seminar at SABC entitled "Overview of R & D at Dow Agrosciences and the development of transgenic corn products based on *Bacillus thuringiensis* resistance to Corn Rootworm. Over the past 12 years he has been in the exciting position of being able to take bench research on isolation and characterisation of novel Bt toxin genes all the way through to commercial deployment in a major crop, maize (or corn). Ken also talked about new biotech crops in the pipeline, including SmartStax corn, which will be released to farmers as a large scale crop in 2010. This new GM variety, which has eight stacked transgenes, will be tolerant to two herbicides ('Roundup' and 'Liberty') and have 6 different Bt genes that confer resistance to Corn Rootworm and the European Stem Borer. In addition to outstanding resistance to insect pests, this type of stacked gene plant will help solve management problems for herbicides if resistant weeds (eg to Roundup) develop. Ken also discussed the logistics of how the stacked genes are combined together in F1 hybrid corn. The message overall is that new technologies in GM crops are proceeding apace, and that Australia will be left behind if biotech crop technology is not adopted. Ken's visit was hosted by Mike Jones, the Director of the SABC.

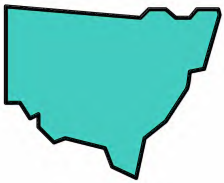
University of Western Australia (UWA)
Centre for Forensic Sciences

Ian Dadour continued his teaching program with the FBI Evidence Response Teams. It was the 10th anniversary of the Human Remains Recovery Course and Ian's 6th visit to teach as part of the FBI Faculty. So far 400 agents have had a huge dose of Forensic Entomology, only 1000 more to go! **Sasha Voss** was invited to attend this year and now has intimate knowledge on how to exhume humans from graves. Ian and **David Cook**, who is now part of the Forensic Entomology group at UWA attended the European Association of FE in Uppsala Sweden. The meeting was not as well attended as previous years with the scientific forum suffering as a consequence.

The Forensic Entomology group at UWA has increased with 4 PhD and 3 Master students. The Forensic Entomology teaching programme at UWA has now been running for 10 years and has been completed by 350 students.

Modika PERERA
WA Regional Councillor

NEW SOUTH WALES



Australian Museum, Sydney

Collections

It has been a long while between updates from the Museum to Myrmecia, which is more a reflection of how busy life has been in the Museum rather than an absence of interesting news. The new Collection & Research Building was completed late in 2008. Part of the entomology collection and staff contingent moved into the building in late October. The entire wet collection is now housed in this building, along with the dry collections of Hymenoptera and Coleoptera. For this dry collection area we have been able to purchase forty new 60 drawer steel cabinets on compactus, and an additional 650 wooden drawers using the Chadwick Bequest. It is a significant leap forward in storage facilities, with plenty of expansion space, and we will be able to complete many of the curation and reorganisation jobs that have been on hold over the past three years. The other upside to having the building finished is that **Jacquie Recsei** has now come back to entomology from her position as building project manager. She is now a permanent technical officer working in collections.

Collection development work has had Dave Britton out in the field collecting from Kosciuszko National Park (Dec 2007/Mar 2008, with **Derek Smith**, **Peta Hinton** & **Alex Hegedus**) and Kanangra-Boyd National Park (Dec 2008, with **Scott Ginn** & Dan Bickel), with further trips planned for late 2009/2010 to the northwestern slopes of NSW to sample dry rainforest remnants. Dave and Dan also managed to visit Western Australia late in 2007 to collect insects in semi-arid woodland and heath areas (near Kalgoorlie) and Dave went collecting in semi-arid woodland in the Charles Darwin Reserve in May 2009. We have had plenty of visitors, in particular Tom Weir from ANIC who has made several visits and has swept through the aquatic Heteroptera in the collection leaving a trail of identified specimens for us to database & curate.

Research

Dan Bickel has been kept busy as one of the co-investigators on the "Terrestrial Arthropods of Fiji" project, which started in 2005 and wound up last year. Along with ongoing research into the systematics and taxonomy of the Australian Dolichopodidae he has now started work as the entomologist on a joint AM/UNSW project looking at the insect inclusions in Cape York Amber. This is the first major amber deposit discovered in Australia, and will no doubt reveal some very interesting information on Australia's past environments. **Chris Reid** continues his work on revising the Chrysomelidae, with PhD students **José Jurado-Rivera** (University of the Balearic Islands) and **Gunter Maywald** (University of Queensland). He recently returned from the Solomon Islands, where he worked with his PhD student **Maclean Vagalo** (University of Queensland) on the sliperi kabis beetle, and taught a short course in agricultural entomology to 15 extension workers. **Dave Britton** has been working on a couple of small projects looking at insects which damage endangered plant species. He is currently working on insects found in the fruit of the Magenta lillypilly *Syzygium paniculatum* (Myrtaceae). Ongoing projects also include the revision of the genus *Asura* (Arctiidae: Lithosiinae), and a revision of the genus *Diceratucha* (Oenosandridae). **Shane McEvey** has found time outside of his editorial duties with AM Scientific Publications to continue his work on the taxonomy of Drosophilidae, doing field work in Micronesia and Papua New Guinea, attending an international drosophilid workshop in California, and completing a sabbatical in France. The AM senior research fellows and associates have also been busy. **David McAlpine** is currently working on revising the species of *Duomyia* (Platystomatidae) found in the Northern Territory, and completing a revision of the family Helosciomyzidae. **Courtenay Smithers** has been describing new species of sponge flies (Sisyridae) from Tasmania, along with his work on the Psocoptera. Amongst the associates, **Rob Lachlan** has published on new species of hawk moths from Oceania and Michael Batley has been working with **Remko Leijs** (South Australian Museum) on revising the blue-banded and teddy bear bees (*Amegilla* spp.), and is now revising the

genus Trichocolletes. **Geoff Williams** has been working through the AM melolonthine collections, updating the identifications, and sorting through the accessions.

Volunteers

We have also expanded our skilled volunteer base, with the addition of **Russell Cox** and **David Bray**, both of which had university training in entomology and zoology, and have returned to the fold after working in other areas. Unfortunately over the past 6 months three of our valuable long term volunteers have met with mishaps outside of the Museum. **Norma Scott** (cicadas) is well on the mend and is back in at work after a nasty fall on a bush regeneration project, but **Anne Gilling** and **Jean Weiner** are both recovering from broken bones due to a fall (Anne) and a cycle accident (Jean). We wish them well in a speedy recovery, and hope to see them back in at the Museum soon. **Philip Russo** is continuing his sorting of field material, and has so far avoided any injuries.

The Museum has recently upgraded and changed our web site. The old AM website was a well utilised resource, but was unwieldy and inflexible, particularly when it came to changing information, adding new pages and searching for pages. The new site allows individual Museum users to create, edit and comment on pages, allows non-Museum people to leave comments and tag pages, and will be a very useful resource in the future. Because the migration of the old to the new was not perfect there are plenty of issues at this stage, such as the loss of the FaunaNet Lucid keys to beetles and bugs, but these will be sorted out over the next few months. Make sure you visit www.australianmuseum.net.au, and check for additional entomological content in the near future.

University of Sydney

Faculty of Agriculture, Food and Natural Resources

The first semester is over and **Sarah Mansfield** is busy preparing for second semester teaching with the able assistance of **Adriana Hoxha**. Adriana is the first technical officer assigned to agricultural entomology since **Annie Noack** decided to pursue her (recently submitted) PhD. Thanks to Adriana's efforts the backlog of student specimens has been integrated into the dry teaching collection. Her next challenge is to tackle the wet collection! The contributions of **Dan Bickel** (Australian Museum) and Mary Whitehouse (CSIRO Entomology) to undergraduate teaching and research collaborations have been recognised with their respective appointments as Adjunct Lecturers. **Dominic Cross** has been awarded the Miklouho-Maclay Fellowship by the Macleay Museum. He is working with the Natural History Curator, **Liz Jefferys**, to prepare a catalogue of insect specimens collected from Cuba that are held by the Macleay.

NSW DPI

Elizabeth Macarthur Agricultural Institute

As project leader, **Jianhua Mo** organised **Grant Herron**, NSW DPI, **Laurence Mound**, CSIRO, **Lara Senior** QDPI&F, and **Greg Baker**, SARDI, and other non entomologists to attend a field day and project workshop for the industry funded project (VN07000) 'Best management options for onion thrips in onion' on the 17-18th June at Gatton Research Station, QDPI&F.

Onion thrips **(Thrips tabaci)** *(photo Thrips of California)*

Orange Agricultural Institute

Our Department continues to change and we are about to merge with other departments to become the Department of Industry and Investment which includes such groups as the

Tourism Authority. It is designed to include all those groups which bring "wealth" to the state. The collections unit has fared well in recent reviews of Entomology and Plant Pathology but whether the recommendations of these reviews will be implemented is yet to be determined. Meanwhile, our Branch has been renamed from "Research Operations" to "Research Businesses" but we're just getting on with our job of being entomologists.

Peter Gillespie and **Holger Löcker** have both been successful in getting DAFF training scholarships. Peter will be travelling to England via Thailand to look at a number of important whitefly pests while Holger will be working at OAI on the South African Maize Leafhopper, *Cicadulina mbila* Naudé. With Marie-Claude Larivière and André Larochelle, **Murray Fletcher** has completed a catalogue of the entire New Zealand Auchenorrhyncha fauna for the Fauna of New Zealand series. Publication of a new genus for most of the microleafhoppers formerly placed in the Palaearctic genus *Zygina* Fieber needed to be achieved prior to the catalogue being submitted and this paper, creating the genus Anzygina Fletcher & Larivière appeared in the last issue of the society's journal.

Birgit Löcker has been quite productive too. On Friday 8th May, she played violin in a string quartet for the National Beefsteak and Burgundy Convention in Orange. On the following Thursday at 8.55pm, she sent to her coauthors a completed manuscript revising the cixiid planthopper tribe Eucarpiini. Four hours later, she gave birth to Julia. How's that for organisation?

Tamworth Agricultural Institute

Adrian Nicholas, NSW Entomologist to the National Arbovirus Management Program (NAMP), visited **Simon Carpenter** and the Arbovirus Entomology team at the Animal Health Laboratories, Pirbright, Surrey, England in June. Adrian leart first hand about the recent incursion of the vector *Culicoides* spp. of Bluetongue Virus from North Africa into Britain and via European countries. They discussed the ecological similarities and differences between species of *Culicoides* that occur in the UK and Australia, the problems associated with monitoring and the potential for managing individual species with different life histories.

University of New South Wales

School of Biological, Earth and Environmental Sciences

Over the past month, all staff and students from the Cassis' lab at UNSW reported steady progress. **Nik Tatarnic** was awarded best PhD in biological sciences at University of Sydney for his work on the systematics and sexual selection in the plant bug genus *Coridromius*. Nik and **Gerry Cassis** (with **Geoff Monteith** of the Queensland Museum) successfully returned from their field trip to tropical Queensland and the Northern Territory, sampling extensively in and around Borroloola. Numerous new land bug species were found including target taxa for the historical biogeography project of Australia. **Celia Symonds** and **Fiona Powell** returned from Lord Howe Island, surviving severe storms, but successfully completing further sampling of invertebrates in relation to the impact of alien rodents. Celia went on to undertake fieldwork at the Charles Darwin Reserve in WA, co-funded by ABRS and Earthwatch – about 40 species of land bugs were collected in less than a week, including specimens of the infamous 'arrow-headed bug'. **Jen Sinclair** has successfully extracted DNA from the gumtree bug genus *Amorbus*, for a project concerning phylogeny of the species, currently being undertaken by **Martin Steinbauer** (Latrobe University) and **Gerry Cassis**. **Geoff Thompson** is returning to the QM after a very productive stint at UNSW, illustrating numerous new species of seed bugs belonging to the Rhyparochromidae.

Sarah MANSFIELD, Murray FLETCHER
NSW Regional Councillors

SOUTH AUSTRALIA

The University of Adelaide

Matthew Hill was recently awarded the Michael Smyth Prize for the best thesis in Honours Zoology in 2008 in the School of Earth and Environmental Sciences at the University of Adelaide. Matt's thesis was entitled "Evaniidae of Australia" and he used COI and 28S genetic

markers to examine the monophyly of the Australian evaniid genera, Acanthinevania and Szepligetiella. Matt, who was supervised by **John Jennings**, is now undertaking a PhD with **Ary Hoffmann** at the University of Melbourne.

Kate Sparks recently returned from the first of two major field trips for her PhD. With a focus on collecting species in the ant genus *Monomorium* and particularly the M *'rothsteini'* species complex, Kate travelled through eastern and central South Australia, Western Queensland and the Northern Territory. The specimens collected on this and subsequent field trips will make a valuable contribution to her assessment of the genetic diversity of the group. Kate's PhD is supported by the Taxonomy Research and Information Network (TRIN) and she was also on the lookout for species of Irodomyrmex and Camponotus which are the focus of two other TRIN ant research projects.

University of South Australia

Sansom Institute

Christie Bader's studies of Australian southern salt marsh mosquitoes (*Aedes camptorhynchus*) are drawing to a close for the most part. It was a big season in the field for Christie, ably assisted by **Samantha Williams**, **Gina Rau** and **Natasha Wilson**. Thankfully it actually rained in SA, meaning plenty of these mosquitoes to work on right through to July. Gina, Natasha, Christie and **Katherine Leach** are all working hard on their respective Honours projects on mosquito ecology, control and climate change.

PhD student **Aishah Azil** recently returned from Cairns where she spent a week working with the Dengue Action Response Team (DART) and Scott Ritchie (JCU and Queensland Health). Her project concerns surveillance methods for the dengue vector *Aedes aegypti*. Her supervisor, **Craig Williams**, followed her to Cairns where he began his review of the *Aedes albopictus* eradication project for the Commonwealth. Naturally, there was time for pinot noir and sashimi with **Scott Ritchie**. This comes on the heels of an analysis of mosquito control methodology for Queensland Health. Craig also travelled with **Stephen Fricker** in June to Ceduna on SA's west coast to work on a mosquito management plan for the district council there.

Mel Schneemilch's PhD work on the ecology of *Acrotriche* heathland plants and their fabulous ants continues unabated as she emerges from the heath only infrequently to consult with her supervisor **Mike Kokkinn**, who is waiting for her results with anticipation.

SARDI

Molecular Entomology (led by **Richard Glatz**) welcomes two new post-doctoral fellows who will carry out challenging molecular research. Firstly, **Tamara Cooper** has begun a project to functionally characterise virus and venom proteins from the Diamondback Moth parasitoid, *Diadegma semiclausum* (Ichneumonidae). The project will run for three years and is funded by Horticulture Australia Ltd. (approx. $350K). Dr **Sassan Asgari** (University of Queensland) is a collaborator on this work. Initial results are promising with seven putative venom genes isolated; four of the genes appear to be homologous and not similar to other known proteins. It is hoped the research will lead to production of immune-based insect controls with

Kate Sparks searches for ants.

reduced chance of resistance.

Secondly, **Kelly Bailey** will undertake a project which aims to isolate and functionally characterise pheromone receptors from the cosmopolitan grain pest, *Tribolium castaneum* (Red flour beetle; Tenebrionidae). The isolated receptors will be used to produce a molecular biosensor that can detect the pest beetles with higher sensitivity than is possible with current technologies. The genome of Tribolium has recently been sequenced, providing data that will underpin the work. If successful the project would provide the first molecular characterisation of an insect pheromome receptor protein and the first commercial biosensor to utilise isolated odorant/pheromone receptors. The 3 year project is a collaboration between CSIRO Entomology (through **Sylwek Chyb**) and SARDI Molecular Entomology (through Richard Glatz), and is funded by the CRC for National Plant Biosecurity (approx. $1M). Another post-doctoral fellow (TBA) will also be located with CSIRO Entomology at Black Mountain in Canberra.

Richard Glatz has also obtained funding from Horticulture Australia Ltd. (approx. 610K for 3 years) for a third project to develop an assay to quantify irradiation damage in Fruit Flies. An initial planning meeting was recently held at SARDI Entomology (Waite Research Precinct, Adelaide) involving collaborators **Phil Taylor** (Macquarie University) and **Wayne Leifert** (CSIRO Human Nutrition). Researchers will utilise an advanced Laser Scanning Cytometer (LSC, the only one of its kind in Australia) to analyse the response of fruit fly cells (from various life stages) to irradiation damage. These data will be correlated to radiation dose and biological parameters such as sterility, pupation, emergence and a range of fly quality attributes. Interestingly, the molecular response of fly cells is homologous to that in humans meaning that there is a strong element of pure science that may have much broader application. Phil, Richard, Wayne and Tamara also visited the CSIRO DNA-damage laboratory in Kintore Avenue to speak with lab-leader Prof. **Michael Fenech** (project collaborator) and inspect the LSC, and other equipment. The aim of the project is to develop a commercial test for quantifying irradiation damage in treated flies; this would have an enormous impact on biosecurity and market access across multiple industries.

Richard Glatz was also appointed to the Biosecurity Advisory Committee to the Kangaroo Island NRM board.

Joanne KENT
SA Regional Councillor

NEWS FROM AFFILIATED SOCIETIES

ENTOMOLOGICAL SOCIETY OF VICTORIA

As you probably have read, Kodachrome (slide film) is no longer available and its last processing laboratory will close within a year. This gap, no doubt, was the incentive to develop the digital camera. Irrespective of mouthparts, many of these new photographers delight in photographing "bugs" and then want to put names to them. The photos are widely distributed over the internet and much discussion ensues about their identity, some of it correct. Incidentally, the collective noun for a group of insects is now "biodiversity".

This has had two consequences for the Society: there are many more calls on members for information about insects other than butterflies, and membership of Melbourne-based people is increasing. Publication of the Moths of Victoria has also greatly increased our exposure. Albeit on a very small sample, it is interesting that Member's night now attracts a bigger audience than a lecture. This is because "show and tell" has become "show and ask" and there is a queue of memory sticks at the computer.

The Council has been considering how it might be able to produce some guides that would assist with this identification load. Pareto's Rule seems to work fairly well for insect Orders - about 80% of the species are contained within 20% of the families. This means that if we could collate representative photographs of 20 - 30 families for groups such as Coleoptera, Hemiptera, Diptera and Hymenoptera we would cover a very large proportion of the species in the Order. Now whether digital biodiversity recorders will be satisfied with just a Family and not the precision of a species name is doubtful.

Council debate is currently centred on whether folded, laminated cards for use in the field would be preferable to a booklet with the same information. If you have strong views on either of these questions secretary@entsocvic.org.au would be interested to hear from you.

Moths of Victoria, Part 2 went to the printer in July so should be available by the time you read this. If you expressed interest with your order for Part 1 (and provided an email address) you will be notified when Part 2 has arrived. If not, enquiries can be directed to vicmoth@entsocvic.org.au

Ian ENDERSBY

ENTOMOLOGICAL SOCIETY OF NEW SOUTH WALES

The Society meets every second month (July, September, etc), usually at the Ermington Community Centre, on the first Wednesday of the month at 7.30 pm. A web-based news bulletin, Tarsus, is published prior to each meeting and can be seen at http://entsocnsw.org.au/.

We have had some excellent guest speakers in recent years, and topics have ranged from taxonomy of cicadas through museum pest control and invasive ants on Christmas Island. A highlight of the year is the Society's Christmas dinner in early December, where we often have the pleasure of renewing acquaintance with out-of-town members.

The decentralisation of entomology in Sydney has provided continuing challenges for the Society, as has emphasis on discipline- rather than taxon-based research in universities and government institutions. Despite this, our meetings continue to have a stable attendance. Nevertheless, we would love to see more of our membership at meetings - do check the website before heading out to Ermington in case we are having one of our very enjoyable off-site meetings!

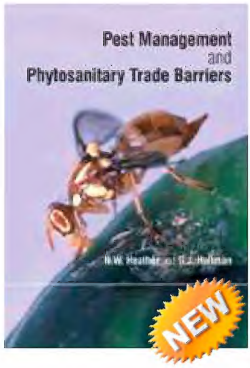
The Society publishes a peer-reviewed journal entitled General and Applied Entomology. For details of scope and manuscript presentation, please see recent issues or the website.

The Society would welcome new members. Information about joining the Society can be obtained from the website.

Dinah HALES

NEW PUBLICATIONS

Pest Management and Phytosanitary Trade Barriers



N Heather, University of Queensland, formerly Queensland Department of Primary Industries, Australia, and G Hallman, USDA
2008 260 pages
Hardback
Price: $260-297.

A significant amount of the world's economy is based upon the international trade of agricultural produce. For the producing countries, a growing concern is the potential economic and ecological damage that invasive species could cause. While threats can be decreased through the regulation of items potentially carrying invasive species, the effect of such restrictions on international trade also needs to be considered. A balance must therefore be met that permits the transfer of produce while filtering out unwanted pests.

Drawing on the author's extensive experience, the social and financial implications of phytosanitary trade barriers are reviewed. This book offers valuable and comprehensive coverage of pest related barriers and strategies for their implementation.

Audience:

Researchers and professionals within the regulatory services in plant protection quarantine, entomology, horticulture and agriculture.

Special offer

Two insect identification CDs are available as a packaged option at a heavily discounted price for a limited time only. They are both interactive

identification guides based on Lucid™'. 'On the Fly' provides an interactive atlas and key to Australian fly families by Hamilton et al., and 'What wasp is that', is an interactive identification guide to the Australasian families of Hymenoptera by Stevens et al. Visit the UQ shop to order (http://shop.cbit.uq.edu.au/ProductDetails.aspx?productID=208).

'On the Fly' & 'What wasp is that?'
Special offer - ABRS Identification series
These two insect identification CDs, are available as a packaged option at a heavily discounted price for a limited time only.
"On the fly – the Interactive Atlas and Key to Australian fly Families - Winner of 2007 Whitley Commendation", for more information on the product click here.
"What wasp is that? An Interactive Identification guide to the Australian Families of Hymenoptera" for more information on the product click here.
back
Price: $30.00 (excluding GST)

ENTOMOLOGY IN THE NEWS

ON THE BRINK: the precarious survival of the long lost phasmid

Adult* Dryococelus australis *(Photo S. Fellenberg)

Dryococelus australis, the endemic Lord Howe Island stick insect, or land lobster (photograph above), was thought to have been wiped out about 80 years ago by introduced rats. However, reports that this impressive insect may have survived on Balls Pyramid, a desolate oceanic spire 23 km from Lord Howe Island, led a National Parks & Wildlife Service (NPWS) team to investigate. Stephen Fellenberg a local Sydney entomologist studying stick insects was asked to be part of the team and tells how the project has been progressing to date.

On the 15th February 2003 Stephen received a pair of these critically endangered insects. The enclosure chosen to house them was a modified reptile enclosure with the temperature kept at 25°C and the humidity greater then 75 %. Both adults were actively feeding on their food plant *Melaleuca howeana* (tea-tree) and mated on several occasions, with the first eggs laid, (which was quite fascinating to watch) it was then a waiting game to see if they would hatch!. The female laid 21 eggs, but only 7 hatched (two females & five males). From this, the 2nd generation (now December 2004) he had a total of 29 eggs and none hatched. By 2006, Stephen had only 2 nymphs hatch and both died.

Stephen's role in this breeding program was two fold, firstly as a back up and to establish at least 10 breeding females. Secondly to include information about the critically endangered species in his educational programs, which is continuing through Insektus.

Stephen has breed many other species of stick insects e.g. goliaths, children's, spiny and titans, they are all fairly easy to look after, fresh leaves a spray of water and he ends up with hundreds, which are sold to help fund the long lost Phasmid project. Stick insects are loved the world over as pets and are spectacular and fascinating creatures that attract little attention, they are not pests, and they don't spread diseases or attack our crops, therefore little research has been done. It's hard to believe that here in Australia very few people know about the long lost Phasmid's plight.

In 2006 Stephen founded a new association called "Friends of the long lost Phasmid Inc." The aims of the friends are listed below with full details on our web site; www.friendsofthephasmid.org.au. Any efforts to help the endangered LHI stick insect will go a long way towards its longevity and will help numerous other species as well. Stephen's challenge is to raise awareness for this incredible stick insect and to be able to breed up as many females as possible.

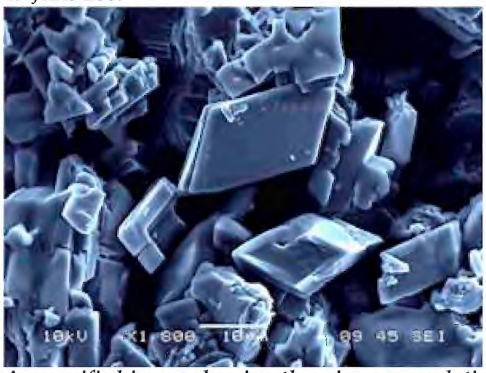
Nymph (notice bump on abdomen). Inset: egg. (Photo: S. Fellenberg)

As of May 2009, Stephen reported that he had three females that have laid over 62 eggs which we will now have to wait 6 to 9 months to see how many hatch.

If you are able help the friends with this project it will be greatly appreciated.

Stephen Fellenberg, Friends of the long lost Phasmid Inc.
Ph 02 4628 5868
PO Box 138 Macarthur Square, NSW 2560
Email: sfellenb@bigpond.net.au

Commercialisation of insecticide 'crystals' offers exciting prospect for farmers world-wide
19 June 2009



A magnified image showing the microencapsulation of insecticide into a crystalline structure.

Time-delayed insecticide 'crystals' could revolutionise pest management in agriculture following a deal between researchers from Rothamsted Research, an institute of the Biotechnology and Biological Sciences Research Council (BBSRC), New South Wales Department of Primary Industries (NSWDPI), Australia and the Italian chemical company Endura.

The agreement will allow Endura to commercialise technology that involves the encapsulation of insecticide into tiny crystals and has proved nearly 100 per cent effective in some insecticide resistance hot-spots around the world. The potential roll out of this research has widespread implications as removing resistance developed by insect pests would revitalise techniques for controlling them. Once released onto the market, the technology will allow farmers to destroy pests that are currently

devastating crops such as potatoes, sugar beet and cotton.

The formal issuing of a licence to Endura is a result of 10 years of research by Dr Graham Moores from Rothamsted Research and Dr Robin Gunning from NSWDPI who together developed the new encapsulation technology.

Dr Moores, explained: "The beauty of the concept is that it should act on any insect pest. In terms of value, one could almost take the cost of insecticide-resistance as a whole to be the possible saving by this technology. Clearly this would be unrealistic, but the point is, it is difficult to assess a possible monetary or crop saving, as it is potentially so vast."

A major problem in pest control is the propensity for insects to mutate and become resistant to pesticides by developing enzymes which block insecticides and stop them from working. The encapsulation works by delaying the release of insecticides to give enzyme inhibitors within the formulation time to disable the enzymes which insects use to block traditional pesticides. The enzyme inhibitor is referred to as a 'synergist'.

While many potential synergists exist, most are too toxic for use in agriculture. So Dr Moores and Dr Gunning's first task was to identify a naturally occurring synergist which they did – called piperonyl butoxide (PBO). However, they found that when the synergist was used in a simple mixture with an insecticide it was not effective in restoring the ability of the insecticide to kill resistant pests.

Dr Moores explained: "We discovered the answer lay in the time taken for PBO to cross the cuticle into the insects and inhibit the enzyme - typically five hours. So the insecticide was already blocked by the insect's enzymes before PBO had a chance to act.

"One possibility would be for crops to be sprayed twice, first with PBO and five hours later with an insecticide. However, time and cost means that this is not practical, so we had to go back to the lab to come up with a novel, viable solution," he said.

That is just what they did, developing time-delayed insecticides using a microencapsulation which take five hours to dissolve and can be applied to crops at the same time as PBO.

Dr Robin Gunning said: "I think it is one of the biggest breakthroughs in pesticide application technology that has come along in a long time. This is a great example of pure laboratory science which has been turned into practical application for farmers worldwide."

Full article:
http://www.rothamsted.ac.uk/corporate/PressReleases/PressReleases.php?PRID=66

New weapon turns fire ants into headless zombies

13 May 2009 (The Associated Press)

Researchers in Texas are trying an unusual approach to combat fire ants—deploying parasitic flies that turn the pesky and economically costly insects into zombies whose heads fall off.

The biting, territorial fire ants cost the Texas economy about $1 billion annually by damaging electrical equipment, according to a Texas A&M study. They can also threaten young calves.

But now the researchers are trying a tiny phorid fly (*Pseudacteon obtusus*), native to a region of South America where the fire ants originated. Researchers have learned that fire ants in their home region are kept under control by as many as 23 phorid species.

Adult of* Pseudacteon, *a phorid fly, emerges from the head capsule of a fire ant worker. (Photo S. Porter)

The flies lay eggs on the fire ants, and the eggs hatch into maggots inside the ant and eat away at the pest's tiny brain. The ant will get up and wander for about two weeks while the maggot feeds, said Rob Plowes, a research associate at the University of Texas at Austin. "There is no

brain left in the ant, and the ant just starts wandering aimlessly," he said.

About a month after the egg is laid, the ant's head falls off—and a new fly emerges ready to attack another fire ant. "They're not going to completely wipe out the fire ant, but it's a way to control their population," said Scott Ludwig, an integrated pest management specialist with Texas A&M's AgriLife Extension Service in Overton, in East Texas.

Four phorid species have been introduced in the state since 1999. They don't attack native ants or other species and have been introduced in other Gulf Coast states, Plowes told the Fort Worth Star-Telegram.

But it will take time to determine if the flies are effective in Texas, perhaps as long as a decade. "It's not an immediate silver-bullet impact," Plowes said.

Full article:

http://www.santacruzsentinel.com/usnews/ci_12358548

INTERESTING WEBSITES

If you are aware of other useful websites out there, please share the information.

Insect Common Names

http://www.ento.csiro.au/aicn/

The CSIRO's web-site is based on the book "CSIRO Handbook of Australian Insect Names".

The site contains a list of insect (and some mite, spider) common names, scientific names and family classification. The site lists whether the species is exotic or native to Australia, and for many species, an image and distribution map is also included. Please note however, that the site is a 'work in progress' and distribution maps for example, may not be correct.

Australian Biological Resources Study (ABRS)

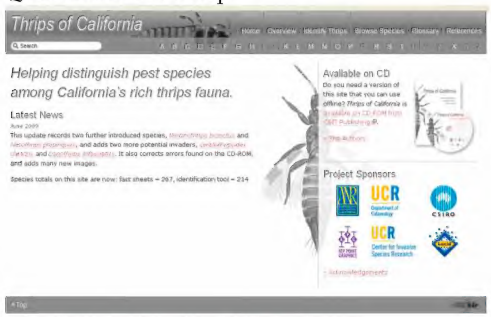
http://www.environment.gov.au/biodiversity/abrs/

The ABRS is a Programme within Parks Australia Division of the Department of the Environment and Water Resources. The site provides taxonomic and biological information on species known to occur in Australia (flora and fauna). In addition, the site includes keys such as a key to the Centipedes of Australia, produced jointly by the ABRS and CSIRO. And if things without jointed appendages are of interest, there are keys to Nematodes (Roundworms), Polychaetes (POLiKEY) and Ferns and Fern Allies.

Thrips of California

http://keys.lucidcentral.org/keys/v3/thrips_of_california/Thrips_of_California.html

Laurence Mound, Mark Hoddle and Dena Paris have released an interactive identification key on the Thrips of California. The web-site contains information on 267 species of thrips (fact sheets) and identification tools for 214 species. The web-site includes a handy section on how to collect and prepare thrips for study. There is also detailed information on pest species such as tomato (*Frankliniella schultzei*) and western flower thrips (*F. occidentalis*), which are present in Australia. These fact sheets include high-quality images of species-level morphological features used in their identification, taxonomic, biological and distribution data. 'Thrips of California' is also available as a CD from the University of Queensland bookshop.



COMING EVENTS 2009

September 25 – 28 2009
Darwin, Northern Territory, AUSTRALIA

DARWIN 200: Evolution and Biodiversity
The Combined Australian Entomological Society's 40th AGM & Scientific Conference/ Society of Australian Systematic Biologists/

9th Invertebrate Biodiversity & Conservation Conference.

The year 2009 marks the 200th anniversary of the birth of Charles Darwin and the 150th anniversary of his work The Origin of Species. This Symposium will provide an opportunity to appreciate, debate, and even challenge Darwin's findings, and will bring together an exciting range of speakers from around the globe.

The meeting will consist of plenary sessions with keynote addresses, and a number of symposia.

The following symposia topics (and organisers) have been put forward as possibilities:

- Tropical fruit flies – Dick Drew /Brian Thistleton
- Biosecurity: Pest and Invaders – TBA
- Social Insects – Alan Andersen/Ross Crozier/Brian Thistleton
- EcoGenomics and Biodiversity – Karen Gibb
- GIS applications in Conservation – Di Pearson
- Marine Biodiversity – Chris Glasby/Robin Wilson
- Taxonomy for the 21st Century – John LaSalle
- The taxonomic impediment and taxonomic publications - Dan Bickel/Bob Mesibov
- Phylogeny and Evolution – Michael Braby/Chris Austin
- Biogeography: Wallacea & Australasia – Chris Austin
- Insect-plant interactions in galls - Laurence Mound/Alice Wells
- Lepidoptera as indicators in climate change and conservation - Michael Braby/Neil Collier
- Coral Reef Triangle – Karen Edyvane

Australian Entomological Society members are invited to suggest symposium topics to which they would like to contribute and/or organise.

The symposia are scheduled as 1.5 hour sessions which could be a 30 minute presentation followed by 4 x 15 minute presentations (or simply 6 x 15 minutes presentations). If a symposium is particularly popular it could be extended over 2 or more 1.5 hour sessions.

Please send your suggestions to:
Brian Thistleton: Brian.Thistleton@nt.gov.au

Key deadlines

Receipt of Abstracts: 25 July 2009
Early Bird Registration Closes: 25 August 2009
Conference Website:
http://www.evolutionbiodiversity2009.org
http://www.cdu.edu.au/cdss2009/index.html

Fifth Asia Pacific Conference on Chemical Ecology

October 27 - 30, 2009
Honolulu, Hawaii

Conference website: http://apace-news.org

Entomological Society of America Annual Meeting

13-17 December 2009
Indianapolis, USA.

The Annual Meeting of the Entomological Society of America is its premier event each year. For a four-day period, thousands of entomologists and professionals from related disciplines gather from around the world to exchange scientific information and ideas, enhance professional knowledge and skills, network with colleagues and re-acquaint with old friends, and conduct the business of the Society.
Contact: ESA, 9301 Annapolis Rd., Lanham, MD 20706-3115, USA.

Email: meet@entsoc.org.
Conference Website: www.entsoc.org.

COMING EVENTS
2010

Australian Entomological Society's 41st AGM & Scientific Conference

September 2010
Perth, WA

Like to drink wine and converse about insects? Next year we are giving members a chance to do both when they visit Perth for the Australian Entomological Society's 41st AGM & Scientific Conference. The conference titled 'Entomology for Australia's Future' will be held in September at the Vines Resort in the Swan Valley. More details will be unveiled in Darwin.

Global Biosecurity 2010: safeguarding agriculture and the environment

28 February - 3 March 2010
Brisbane

The Global Biosecurity 2010: safeguarding agriculture and the environment conference will provide a unique opportunity for researchers, governments, agricultural industries, environmental organisations and others to stay informed on international biosecurity drivers, threats, knowledge systems and operational systems.

The conference is progressing, with abstracts due by 31 July and a program being developed. While the abstracts for presentations and posters are rolling in, you have the opportunity to make substantial savings on the cost of conference registration.

To register, submit an abstract or find out more, visit the conference website at www.globalbiosecurity2010.com.

8th International Symposium on Fruit Flies of Economic Importance

12-17 September 2010
Valencia, SPAIN

The meeting is organized by the Instituto Valenciano de Investigaciones Agrarias and the TRAGSA-Medfly SIT Program in Valencia. The meeting will take place at the facilities of Valencia Conference Center (Palacio de Congresos). The purpose of the Symposium is to bring together academic, industry, research and action people from the all over the world to discuss the various aspects of fruit flies and recent developments related to Pest Management Strategies. The meeting will encourage cooperation between participants, contribute to spread new findings, promote their practical use and highlight research needs.

Contact: L. Navarro, fruitfly2010@ivia.es.

NOTICES

Revised ICON Case for Dead/Preserved Invertebrates

The Australian Quarantine and Inspection Service (AQIS) has recently reviewed the conditions for importing dead and/or preserved/fixed invertebrate specimens. The review was in response to a recent increase in the number of preserved insect consignments being held on arrival for not complying with import conditions (mainly not preserved in exactly 70% ethanol or with preservative drained off).
The review was initiated to broaden the scope of current import conditions from insects to cover all invertebrates and allow some flexibility while still targeting the quarantine risk. New import conditions have been developed and can be found on the ICON database on the AQIS website (www.aqis.gov.au/icon) by searching for "Invertebrates". Key points to note from the new conditions include:

- The permitted ethanol preservation concentration has been changes from 70% to a range of 60-100%;
- Specimens preserved in ethanol are permitted to be drained off prior to export to comply with transport of dangerous goods requirements;
- Bees of the genus *Apis* are excluded from the new conditions and still require 70% as per the "Bees – Dead and/or Preserved" ICON case;
- Slide mounted specimens are not included in the new conditions. Please refer to the existing "Microscope slides" ICON case for import conditions;
- Invertebrate specimens that are dead (dry) are permitted without an Import Permit subject to the new import conditions on ICON. Specific conditions exist for specimens accompanied with suitable supplier/packers declarations, specimens exported from or imported to recognised Scientific Institutions and for specimens that are professionally prepared, mounted/pinned and labelled;
- Note: A recognised Scientific Institution is a scientific institute registered with the

Convention on International Trade in Endangered Species (CITES) of wild Fauna and Flora. A list of these institutions can be found at www.cites.org/common/reg/e_si.html. It is recommended that scientific institutions check to confirm either they are registered with CITES or that their suppliers are registered;

• Invertebrate specimens that fail to meet the new conditions will be subject to a quarantine approved treatment prior to release; and

• A valid Import Permit is still required for the importation of live organisms and knowingly infected organisms.

For more information contact:
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Call for plant professionals to become SPHDS members

Expressions of Interest are being sought from Australian plant professionals interested in becoming members of the Subcommittee on Plant Health Diagnostics Standards (SPHDS).

The SPHDS, a working group of the national Plant Health Committee, is working to improve the quality and reliability of plant diagnostics for plant pests of concern throughout Australia.

The SPHDS has a number of working groups that need more members to progress national plant health diagnostic activities, these groups include the:

- Accreditation, Expertise and Resources Working Group that looks after laboratory accreditation and proficiency testing
- Diagnostic Standards Working Group that looks after the submission, validation, endorsement and review of National Diagnostic Protocols and SPHDS Reference Standards
- Diagnostic Strategy Working Group that has been formed to shape the National Plant Health Diagnostic Strategy, and
- Training Coordination Group that assists in facilitating training for diagnosticians and, identifies gaps in diagnostic capacity that can be filled by training.

Members of the SPHDS working groups will have the opportunity to help influence the direction of national diagnostic capacity building in Australia.

Working group members are expected to attend two face to face meetings each year (usually in April and September), participate in teleconferences and assist in progressing group projects. Plant professionals interested in SPHDS working group membership should note that the positions are not paid and expenses are not covered by the SPHDS.

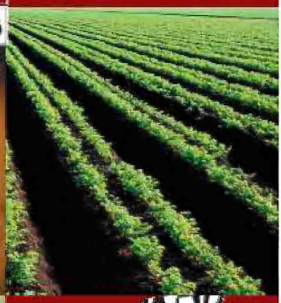
Expressions of Interest must include a one page description of your interest and skills that you would bring to the group, along with a letter of support from your employer.

Submissions are to be emailed to:
Patricia Gray
Email: ocppo@daff.gov.au,
SPHDS Executive Office
telephone 02 6272 4568 by 31 August 2009.

Plant Health & Protection research

Symposium 2009

APPS



Students and early career researchers are invited to present their work at the third annual Australasian Plant Pathology Society (APPS) symposium for Plant Health and Plant Protection specialists.

Prizes will be awarded for best presentation, scientific endeavour and peer award.

Date: Friday October 23, 2009

Symposium: 12.30 – 4.30pm

Sundowner: 4.30 – 6pm

Venue: Agriculture Theatrette, DAFWA South Perth

Sponsors : Australasian Plant Pathology Society, American Phytopathological Society and CRC Plant Biosecurity

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Her Excellency,
Ms Quentin Bryce AC,
Governor-General of the Commonwealth of Australia

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